

5

10

**Patent Claims**

1. A method for producing hydrogen by reacting amorphous silicon with water.
- 15 2. A method for producing hydrogen by reacting amorphous silicon with an alcohol.
3. A method for producing hydrogen by reacting amorphous silicon with a carboxylic acid.
- 20 4. The method according to one of the preceding claims, characterized in that black chemically uncovered amorphous silicon is used.
- 25 5. The method according to one of the preceding claims, characterized in that it is carried out at ambient temperature.
- 30 6. The method according to one of the claims 1 to 3 or 5, characterized in that brown chemically covered amorphous silicon is used.

7. The method according to claim 6, characterized in that the reactivity (reaction temperature) of the amorphous silicon is controlled by control of the chemical covering of the same.

5

8. The method according to one of the claims 2 to 7, characterized in that the compounds  $\text{Si}(\text{OR})_4$ , wherein R means an organic radical, especially alkyl radical or carboxylic acid radical, generated during the hydrogen production with an alcohol or with a carboxylic acid are converted into  $\text{SiO}_2 + \text{HOR}$  by hydrolysis.

10

15

20

25

30